

REMARKS

Applicant would like to thank the Examiner for the careful consideration given the present application. The application has been carefully reviewed in light of the Office action, and amended as necessary to more clearly and particularly describe the subject matter which applicant regards as the invention and to place the application into better condition for appeal, if necessary.

Specifically, claim 10 has been amended by this Amendment to clarify that the modified resin (F') has an organosilicate structure part and an acrylic resin structure part, that the modified resin (F') is prepared by polymerizing a mixture of polymerizable monomers for constructing the acrylic resin structure part in the presence of a non-radical polymerizable organosilicate for constructing the organosilicate structure part, wherein the mixture of polymerizable monomers for constructing the acrylic resin structure part contains both (i) one or more hydroxyl group-containing radical polymerizable monomers, and (ii) one or more epoxy group-containing radical polymerizable monomers, that the content of the hydroxyl group-containing radical polymerizable monomers is from 1 to 15 percent by weight of all monomers for constructing the acrylic resin structure part, that the content of the epoxy group-containing radical polymerizable monomers is from 5 to 60 percent by weight of all monomers for constructing the acrylic resin structure part, and that the non-radical polymerizable organosilicate is represented by formula (2):



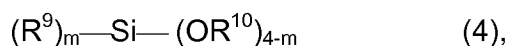
wherein R^3 and R^4 are each hydrogen atom, an alkyl group having 1 to 10 carbon atoms or an aryl group having 1 to 10 carbon atoms and n is 0 or 1, and/or a condensate thereof. Support for the monomer content limitations added to claim 10

can be found in the specification at page 26, lines 10-28. Claim 20 has been amended to accord the changes made to claim 10. No claims have been canceled and no new claims have been added. Accordingly, claims 10-21 are pending in the application. Clearly, no new matter has been added to the application.

In the prior Office Action, the Examiner rejected claims 10-21 under 35 U.S.C. §102(b) as being anticipated by Yamamoto et al., U.S. Pat. No. 6,103,387. In view of the changes made to claim 10, applicants respectfully request reconsideration of the rejection of claims 10-21.

Yamamoto et al. discloses a thermosetting composition that comprises (A) a compound having in the molecule two or more carboxyl groups blocked by a vinyl ether compound, a vinyl thioether compound or a hetero compound having a vinyl type double bond and oxygen or sulfur as the hetero atom, (B) a compound having in the molecule two or more reactive functional groups which can form chemical bonds with the blocked carboxyl groups of compound (A), and (C) a dispersing component of at least one inorganic oxide sol selected from the group consisting of aluminium oxide sol, silica sol, zirconium oxide sol and antimony oxide sol, and optionally (D) a thermal latent acid catalyst which is activated during curing the composition by heating. As noted by the Examiner, Yamamoto et al. states that compounds utilized as ingredient (B) in the thermosetting composition of the invention are compounds having in the molecule two or more, preferably from 2 to 50, reactive functional groups which can form chemical bonds by the reaction with the regenerated carboxyl group formed from the blocked carboxyl group (1) of the compound (A) by heating (see col. 10, lines 61-67). With respect to ingredient (B), Yamamoto et al. further states that the reactive functional groups may include a single kind or two or more

members (see col. 11, lines 9-10). Yamamoto et al. lists a very large number of compounds of ingredient (B) including compounds having epoxy group (see col. 11, lines 11-12), compounds having a silanol group or alkoxysilane group, such as condensation products of a compound having the formula (4):

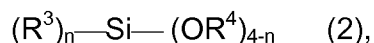


where R⁹ and R¹⁰ are each selected from the group consisting of alkyl group of 1 to 18 carbon atoms and aryl group of 1 to 18 carbon atoms and m is 0, 1 or 2 (see col. 11, lines 48-55), and compounds having a hydroxyl group (see col. 11, lines 61-62).

However, Yamamoto et al. does not teach or suggest that a mixture of polymerizable monomers including monomers having an epoxy group and monomers having a hydroxyl group should be polymerized in the presence of an organosilicate to construct a modified resin having an organosilicate structure part and an acrylic resin structure part as claimed in claim 10. At best, Yamamoto et al. discloses a very long list of monomers from which a mixture of monomers could be created. But Yamamoto et al. does not provide any teaching or guidance that would lead one of ordinary skill in the art to select monomers having an epoxy group and monomers having a hydroxyl group in the amounts claimed in claim 10, and to polymerize such monomers in the presence of an organosilicate to construct a modified resin having an organosilicate structure part and an acrylic resin structure as claimed. The modified resin (F') as claimed in claim 10 is thus clearly not anticipated or fairly taught or suggested by ingredient (B) of Yamamoto et al.

In the prior Office Action, the Examiner also noted that Yamamoto et al. discloses ingredient (A'), which is an acrylic polyol resin prepared by copolymerizing essentially (a) a (meth)acrylic acid ester of an alkyl alcohol of 1 to 12 carbon atoms,

(b) a polymerizable double bond-containing and hydroxyl group-containing monomer and (c) a polymerizable double bond-containing and carboxyl group-containing monomer, and optionally (d) styrene, (e) acrylonitrile and (f) other polymerizable double bond-containing monomer (see col. 26, lines 1-8). Applicants note that Yamamoto et al. does not teach that the monomers used to construct ingredient (A') should be polymerized in the presence of a non-radical polymerizable organosilicate represented by formula (2):



wherein R^3 and R^4 are each hydrogen atom, an alkyl group having 1 to 10 carbon atoms or an aryl group having 1 to 10 carbon atoms and n is 0 or 1, and/or a condensate thereof as claimed in claim 10. And thus, any ingredient (A') produced in accordance with the teachings of Yamamoto et al. would not have an organosilicate structure part and an acrylic resin structure part as claimed in claim 10 of the present application.

Applicants further note that a further reaction between the ingredient (A') and an organosilicate compound would produce a different product than is claimed in claim 10, which would exhibit less preferable properties. As noted in the specification from page 28, line 26 to page 29, line 14 (additional information supplied in brackets; underlined emphasis added):

The modified resin of ingredient (F) used in the present first invention includes a modified resin (F') prepared by normal radical solution polymerization of a mixture of polymerizable monomers for an acrylic resin synthesis comprising a hydroxyl group-containing radical polymerizable monomer or both of a hydroxyl group-containing radical polymerizable monomer and an epoxy group-containing radical polymerizable monomer, in the presence of an organosilicate represented by formula (2) and/or the condensate thereof, and [in a second embodiment disclosed in the application but not claimed in

claim 10] a modified resin prepared by polymerizing a mixture of polymerizable monomers for an acrylic resin synthesis to obtain the precursor of the modified acrylic resin and then reacting the precursor with the organosilicate represented by formula (2) and/or condensate thereof during heating. In the latter modified resin, there are some cases that the organosilicate and/or the condensate thereof are generated by liberation and exist as spot pattern in the paint film and damages the appearance. Therefore, the former modified resin is preferable.

By preparing the modified resin (F') by polymerizing a mixture of hydroxyl group-containing radical polymerizable monomers and epoxy group-containing radical polymerizable monomers in the weight percentage ranges claimed in claim 10 in the presence of a non-radical polymerizable organosilicate, a stain resistant coating composition as claimed in claim 10 can be obtained that, when cured, provides stain resistance based on a high degree of hydrophilic property immediately after formation of the paint film, and which exhibit further excellent weathering resistance for a long time as well as water resistance and chemical resistance. The modified resin (F') according to claim 10 is different in structure and would likely produce superior results as compared to a resin resulting from a reaction between (A') of Yamamoto et al. and an organosilicate compound. For that reason, reconsideration of the rejection of claim 10 in view of Yamamoto et al. is respectfully requested.

Claims 11-21 depend, directly or through an intervening claim, from claim 10. Therefore, because claim 10 is patentable over Yamamoto et al., claims 11-21 are also patentable over such prior art reference.

Also in the prior Office Action, the Examiner rejected claims 10-21 under 35 U.S.C. §102(b) as being anticipated by Nambu et al., EP 1 013 730/ U.S. Pat. No. 6,316,572. Nambu et al. discloses a curable composition comprising: (A) a resin (A-

1) obtained by mixing an epoxy group-containing compound (x) component and a carboxyl group-containing compound (y) component and/or a resin (A-2) based on an epoxy group-containing and carboxyl group-containing vinyl copolymer (z) component; (B) a vinyl copolymer whose main chain substantially consists of a vinyl copolymer chain and which has, within the molecule thereof, at least one hydrolyzable silyl group bound to a carbon atom; and (C) a silicon compound and/or a partial hydrozylate condensate thereof. The Examiner notes that Nambu et al. is silent on polymerizing the mixture of compound (x) and compound (y) of component (A-1) in the presence of component (C), but contends that the resulting product would be the same as claimed in claim 10 and thus is unpatentable using the reasoning applied in In re Thorpe, 777 F.2d 695, 227 USPQ 964 (Fed. Cir. 1985). Applicants respectfully disagree.

Applicants note that compound (x) and compound (y) of component (A-1) are not monomers. They are polymers that have been polymerized prior to being mixed with component (C). For example, at col. 7, lines 23-27, Nambu et al. discloses the number average molecular weight of the compound (x) polymer. At col. 9, lines 31-38, Nambu et al. discloses the number average molecular weight of the compound (y)-i polymer. And at col. 10, lines 27-31, Nambu et al. discloses the number average molecular weight of the compound (y)-ii oligomer. Nambu et al. teaches that component (A) and component (C) should be admixed together to form the curable composition (see, e.g., col. 18, lines 5-8 and col. 20, lines 34-36). Thus, the monomers used to form the polymers of component (A) are not polymerized in the presence of component (C) in the composition according to Nambu et al. The monomers have already been polymerized to form resins when they first contact

component (C). Thus, Nambu et al. is similar to Yamamoto et al. in its teachings in that it suggests reacting a precursor acrylic resin with an organosilicate. Obviously, the resulting product produced in accordance with the teachings of Nambu et al. is not identical or substantially similar to the modified resin having an organosilicate structure part and an acrylic resin structure part as claimed in claim 10. Thus, application of the In re Thorpe analysis is inappropriate, because the resulting products are not sufficiently similar.

Claims 11-21 depend, directly or through an intervening claim, from claim 10. Therefore, because claim 10 is patentable over Nambu et al., claims 11-21 are also patentable over such prior art reference.

Finally, in the prior Office Action, the Examiner rejected claims 10-15 and 18-21 under 35 U.S.C. §102(b) as being anticipated by Nakamura et al., JP 11-116847 ("JP847"). JP847 discloses a topcoating composition obtained by incorporating (A) 100 parts by weight of an organic coating composition with (B) 0.1-15 parts by weight of a partially hydrolytic condensate of an organosilicate compound. Component (A) of JP847 can be an acrylic resin formed by copolymerizing a hydroxyl group-containing monomer (a) and other polymerizable vinyl monomers (b) such as epoxy group-containing monomers (see, e.g., paragraphs [0028]-[0030]). The copolymerization product (i.e., a resin) component (A) is then contacted with the organosilicate component (B). Thus, the monomers used to form the polymers of component (A) are not polymerized in the presence of component (B) in the composition according to JP847. The monomers have already been polymerized to form the resin before the resin contacts component (B). JP847 is thus similar to Yamamoto et al. and Nambu et al. in its teachings in that it suggests reacting a

precursor acrylic resin with an organosilicate. Obviously, the resulting product produced in accordance with the teachings of JP847 is not identical or substantially similar to the modified resin having an organosilicate structure part and an acrylic resin structure part as claimed in claim 10. Thus, application of the In re Thorpe analysis is inappropriate, because the resulting products are not sufficiently similar.

In light of the foregoing, it is respectfully submitted that the present application is in a condition for allowance and notice to that effect is hereby requested. If it is determined that the application is not in a condition for allowance, the Examiner is invited to initiate a telephone interview with the undersigned attorney to expedite prosecution of the present application.

If there are any additional fees resulting from this communication, please charge the same to Deposit Account No. 18-0160, our Order No. ORI-17098.001.

Respectfully submitted,

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